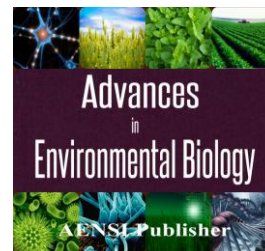




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### The effect of Mathematical realias on spatial Geometry training of grades 2 math courses on educational progress of female students

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#### ABSTRACT

**Background:** The present research was done with the purpose of finding the effect of mathematical realia in teaching spatial geometry of grade 2 students on educational progress of geometry course. **Objective:** The specific purposes are: Determining the relationship between teaching through the use of realia and without it on educational progress of students. The method of research was semi experimental in a way that all the students being studied were given a pre-test simultaneously and at the same level. Based on the marks of the students and after homogenizing them, they were divided into 2 groups of experiment and witness. **Results:** Two problems of geometry one were taught to 2 groups of witness and experiment through the use of realia. After the end of teaching period the students were given a post test and the difference of the performance of the 2 groups were examined. **Conclusion:** According to implemented independent t-test and the achieved data There is a meaningful difference between the performance of grade 2 students who have been taught geometry through the use of realia and those who have been taught traditionally.

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#### INTRODUCTION

Educational progress of the students is considered as one of the basic and important components of arriving educational office at its objectives. From the other hand, realias are not in effective in educational progress of the students and realia whether simple or complex are used as a tool to facilitate teaching/learning process of educational systems. Since they have combined theory and practice together, they have caused the stability of learning and have given variety to class environments are considered important[10].

The use of realia in teaching by the teacher causes the presented materials to be placed in structure cognition of the students and the students arrive at meaningful learning. Unfortunately, the regular and basic use of realia for any excuse is neglected and they make an excuse of shortage of time and lack of tools for not using realia in class. It is hoped that the use of education helping tools and realis is internalized one day to cause dynamic and mobility. In educational system of our country.[1]As NCTM [National Council of Mathematic Teachers] and other researchers have declared one of the most important objectives of mathematics is that the students learn to consider mathematics worthy and become aware of its efficiency in life and training thinking ,reasoning and analysis abilities. Furthermore, they should ensure of their capabilities and capacities in doing mathematical problems and different situations of problem solving to the extent that trying and making effort in mathematics becomes a satisfactory and pleasing action for them, not a stressful and bothering one [2].

Using education helping tools plays a positive effect in learning process of the students .Unlike traditional education which was teacher centered,and the teacher was the only source and reference of their learning, the modern education has decreased some the teachers' responsibilities and has put in it the framework of education helping tools until the teachers deepen the learning process of the students using these tools in teaching.[Ayubi,1999]Nowadays all the experts of teaching sciences strongly believe that teaching this course will be effective and efficient if through first hand experiences,direct experiments and involvement with education helping tools, research and problem solving the students try to get knowledge.[9]

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The holy prophet Mohammad [pbuh] said : Experience is more important than knowledge. Because it can provide more facilities for students through the choice and strategic and correct use of coeducational tools so that they get more experience.

*Realia:*

Realia includes tools and instruments which are used during teaching. As one can understand of the topic, these tools help the teaching process. The more these education helping tools are used, the more easier and in a short period of time the learning will take place, and teaching becomes more practical and effective in blossoming the creativity, innovation and talents of the students. The study of the experts of education have shown that more learning takes place when more senses are used and it would be achieved with the use of media and education helping tools. In addition, the education helping tools have a vital role in forming first hand learning experiences and somehow like them, saving teaching duration and forming faster, deeper and stable learning. They cause the stabilization of learning and keep the learned materials for a long time [6].

Realia as education helping tools which are sometimes called audiovisual if are used properly and on time would have a lot of positive effects and benefits such as; They clarify the problems of course materials and cause the students to focus on the considering problem. The use of realia makes the probability of understanding the course materials many times more [11].

Realias are active factors to motivate students because they motivate their interest to learn and increase experiences. In addition to explaining the problems and ambiguous course materials they help its activity in students' minds and facility of reminding in needed time. Therefore, instead of learning abstract concepts of mathematics just through reading book or at most with the help of some diagrams, the use of realia in teaching can increase the level of learning. [15] properties of a suitable realia

1. Increasing the pace of learning: The average of learning time in learning process decreases.
2. Increasing the depth of learning: It causes the more precise and correct learning.
3. The availability and easy use capability: Making it is possible for all and its use is simple.
4. Repetitive reference capability: Realia should not be used once. It should be made in a way that it can be used many times.

2.3: For what materials in mathematics one can make realia?

Usually for materials such as theorem, definition, problem or property which possess a diagram or geometrical interpretation one can make a proper realia. Because if any material possesses a geometrical interpretation, so there exists a show for it. According to possessing diagram or geometrical interpretation geometrical materials and problems are classified into 3 groups:

- The materials which have definite geometrical interpretation or diagram, such as derivation, function or theorems of geometry.
- The content which don't have definite geometrical interpretation or diagram, such as sets or determinants.
- The materials [contents] which don't have geometrical or artificial interpretation, and finding physical or geometrical interpretation for them is difficult, such as initial numbers or hospital rule.

4. Examining the previous findings [practical researches] Edgar Dil [quoted by Teymoori] believed that in educational experiences, the more we move from signs and digits, dialogue, fixed images, educational TV, fairs, scientific tour and plays towards artificial, direct and purposeful experiences, the level of learning becomes more concrete and vice versa. A group of philosophers of education [quoted by Al-e-Eshagh, 2006] believed that getting mastery over the use of realia in teaching is more important than the knowledge and scientific information of the teacher. The teachers who have taught mathematics using realia were more successful than their colleagues who were just dependent on their scientific information and fixed formula. Thus, one can say certainly that if the curriculum or educational sources [not just course books] or even a simple tool relating to a simple practical image are provided for these teachers because of complete familiarity with the teaching methods and techniques they would be more successful in teaching. Taking account these explanations and since traditional teaching methods especially lecturing method while possessing many limitations would not be able to direct the society and its people to changes and developments in learning issue. So the necessity of change [modification] and presenting new methods of teaching in classrooms with teaching/learning strategies is felt more than before. Deriscole [1999] [quoted by Seif, 2001] believed that by making students involved through challenging assignments close to real world situations the teachers can change and develop the the students and this is the best and most proper chance for teachers to play their role in the best form and help the students in finding the required resources [12].

Kerry Santo quoted by Williams and Ethingwood, 2004] mentioned that the use of technology in teaching geometry helps the discovery of new ideas in mathematics and geometry [1]. The agency of teachers' training declared that using technology for students in learning mathematics causes them to experience numerical and geometrical skills and make them firm and pave the next steps for modeling in mathematics through examining, interpreting, explaining the patterns and the present realia. It also causes them to communicate [make relations] within and outside the realm of mathematics and develop abstract imaginations. The national council of

mathematics teachers considered technology as one of the 6 standards of school math and emphasized that technology has a basic role in teaching and learning mathematics, it influences the math to be learned and promotes students' learning. Remmi and Pippert and Sullivan found that the environment of open or dynamic classes was suitable to develop the conditions of research, curiosity, meddling, self government, and learning. But the traditional classes which were held strictly in test given, ranking, and potent teaching were making less changes in their curriculum [10]. Sullivan also found that the students of open classes got meaningful and better marks in 2 out of 4 Gelford test. Providing the background and conditions which result in reinforcement of creative thinking at schools has a wide range which stretches from changes in outlooks to teaching methods. Chamberz concluded that the teachers who cause the growth of creativity in students tend to informal methods in managing and directing classes. They let the students choose the topics they want, and receive their unusual viewpoints. They give rewards to creativity, interact with them out of the class and consider encouragement of their independence and positive performance as the effective role of creativity pattern. In the contrary, the opposite behaviors which decrease creativity are as follow: disappointing their ideas, emphasizing repetitive learning, insecure, strictness, and applying traditional methods which lessen creativity [19]. The committee of national society, the study of education in America [quoted by Rashidpour] found that the educational tools and materials produce tangible basis for thinking and producing concepts. They make learning faster, concrete, and factual which are not achievable through any other way. They cause continuity of the thoughts. They teach a skill in a more effective and complete form to the students and are effective in growth and development of meaning in student's minds, and they help the range of their vocabulary to increase [14]. Sefidgar [2002] showed that the use of educational tools, laboratory, attendance in in-service training classes of active and cooperative methods of teachers, specialization of the teachers' field of teaching, determining the objectives of teaching and assessment cause the better use of active teaching methods. They also found out that there was a meaningful relationship between the teachers' use of active teaching methods and the efficiency of the quality of teaching [1,5]. Gahramani [1999] found that using helping tools on the side of the teacher had a positive effect on students' cooperation in teaching process and also holding necessary trainings on how to use the education helping tools had a positive effect on the amount of student's learning. Bateni found that the use of educational tools and materials was effective on students' learning [7].

#### Results:

**Table 1:** The results of average difference test for the variable of students' performance in control and experiment groups

Variable	SD	M	Number of the students	Group
Performance of the students	25.32	71.64	60	Experiment
	23.20	55.67	60	Control

According to table 1, there is a meaningful difference between the performance of grade 2 students who have been taught geometry using realia and those who have been taught using traditional methods.

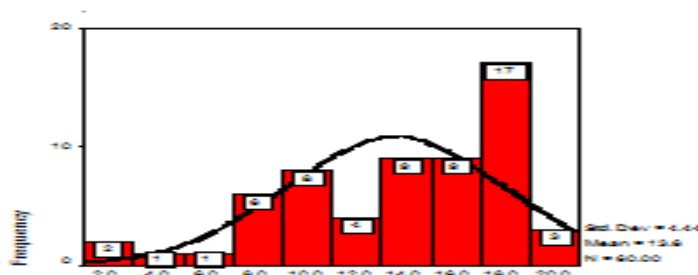
**Table 2:** The results of variances' consistency test for the variable of students' performance in control and experiment groups

Variable	P	Df	T	P	F	Group
Performance of the students	0.000	118	3.60	0.12	2.44	Experiment
						control

**Table 3:** Distribution of pre test mean dispersion of grade 2 students being considered.

	Range of variance	Maximum	Minimum	Coefficient	Standard deviation	Mean	Number of the students
Pre test mean of grade 2 students	17.50	19.50	2	-0.72	4.43	13.57	60

According to table 3, the mean of pre-test average of grade 2 students of mathematic field equals 13.57, standard deviation was 4.43 and the crookedness coefficient was -0.72 so that the least pre test mean of these students equaled 2 and the most one equaled 19.50.

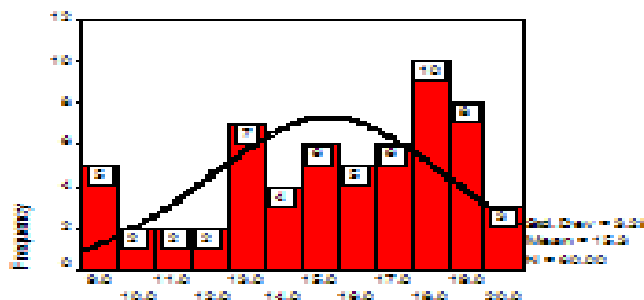


**Diagram 1:** Distribution of pre test mean dispersion of grade 2 students being considered

**Table 4:** Distribution of post test dispersion of considering grade 2 students

	Range of variance	Maximum	Minimum	Coefficient	Standard deviation	Mean	Number of the students
Pre test mean of grade 2 students	17.50	19.50	2	-0.72	4.43	13.57	60

According to table 4, the mean of post test marks of grade 2 students  $M=15.27$ ,  $SD = 3.27$  and crookedness coefficient equals  $-0.56$  in a way that the minimum post test mark of these students was  $8/5$  and the maximum was 20.



**Diagram 5:** Distribution of post test dispersion of considering grade 2 students

#### Conclusion:

The performance status of students of experience group was higher than that of those in control group. But the interactive effect of groups and the kind of high school was not meaningful in their performance. That's to say, the performance of control and experiment groups in these 2 high schools was not different. In sum, teaching geometry through the use of realia and concrete tools helped the effectiveness of teaching and results in improvement of the performance of students in this course.

#### REFERENCES

- [1] Khoy, N., 2001. Research methods in cultural sciences. Tehran, SAMT publications.
- [2] Alam olhodae, S.H., 2008. The principles of teaching mathematics, Mashhad, JahaneFarda publications.
- [3] Rafi poor Gotabi, A., 2009. Planning a framework to create a balance in mathematics program of high schools in Iran. Ph.D Thesis, Tehran Shahid Beheshti.
- [4] Khakbaz, A.S and N. Moosa poor, 2007. Getting benefit of informal mathematics to plan learning chances in math course program. Seasonal magazine of studies and course program.No.11.
- [5] Eshagh, S., 2006. New Learning methods for teachers. Tehran. Agheh publications.
- [6] Bazargan, F., 2001. The principles and methods of education. Tehran, Pocket sized books jointstock.
- [7] Dinian, M., 2003. The comparison of effectiveness of active and traditional teaching methods on educational progress of guidance school students of Freidoonshahr, MA Thesis.
- [8] Sefidsgar, Y., 2002. The investigation of effective factors on improvement of teaching quality and teachers' use of active methods in guidance schools of Naein. The research council of Isfahan province.
- [9] Seif, A.A., 1999. Measurement, testing and assessment. Third edition. Tehran. Aghah publication.
- [10] Seif, A.A., 2002. Cultural psychology [The psychology of learning and teaching] 9<sup>th</sup> edition. Tehran Aghah publications.
- [11] Teymoori, M., 2001. Mathematical realias, first edition.

- [12] Shaebani, H., 2002. Educational skills [Teaching ,athods and skills] The organization of study and compilation of human sciences [SAMT]
- [13] Vakilian, M., 2008. Teaching methods and skills. Tehran.Payam Noor publications. 5<sup>th</sup> edition.
- [14] Mirza vaziri, M. and K. Narenjani, 2007. Mathematical quotations. Mashhad. SokhanGostar Publications.1<sup>st</sup> edition.
- [15] Rashid poor, E., 1970. Audio visual education. 1<sup>st</sup> edition.
- [16] DeLange, J., 2003 .Mathematics for Literacy. InB.L. Madison & L.A.SteenLiteracy. Why Numeracy Matter for School and Colleges, pp: 75-89.
- [17] Bum, W. et al. 2002. ICMI STUDY 14:Applications and Modeling Mathematics Education – Discussion Document .Educational Studies in Mathematics, 51: 141-171.
- [18] www.edunews.ir. 2009. Evaluation in Education.
- [19] Woolfolk, A.E., 2007. Educational Psychology [5<sup>th</sup> ,6<sup>th</sup> ,8<sup>th</sup> and 9<sup>th</sup>ed] Boston :Ally and Baco.
- [20] KhosroJerdi, Z., 2009. <http://tanintarbiyat.blogfa.com>.